

Arctic Birds as Migrants in N.Z.

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Of migrant birds whose seasonal movements take them beyond the New Zealand region there are, excluding the pelagic petrels and penguins, three groups. Species breeding in New Zealand but spending the southern winter in the tropics south of the equator are few; the cuckoos *Chalcococcyx lucidus* and *Eurodynamis taitensis* seem to be the only representatives of this group. The second group seems to be confined to one species, the banded dotterel, *Charadrius bicinctus*, whose seasonal movements, not well known, appear to extend to Australia. The third and largest comprises the assortment of waders (Charadriiformes) which, together with at least two northern jaegers (Stercoraciidae) "winter" in New Zealand throughout the southern summer.

The present study is concerned with the third group and aims at bringing records up to date and outlining what is known of the general condition and habits of the birds during their stay in New Zealand. The first important local study of these birds as a group was that of Stead (1927) and more recently Oliver (1930) has brought further up to date the record of species occurring here.

The exact breeding range of the races wintering here is usually expressed in general terms as Eastern Asia or Alaska. The fact that lately Portenko (1936) has indicated narrow breeding ranges for races of *Limosa lapponica*, and Rowan (1932) has been able to distinguish three breeding races of the American dowitchers suggests that it may be possible to narrow down the area from which our austral birds originate. It will at least be many years before a satisfactory scheme of bird marking can be instituted between two regions, one almost uninhabited and the other having few observers, and in the meantime more accurate description of the plumage characters and dimensions of such specimens as are available should help the ultimate object of defining the New Zealand birds more exactly.

Migration study in the northern hemisphere, notably that of Rowan (1931) has shown that the physiological changes associated with spring migration to northern breeding grounds may be conditioned by increasing daylight. It has been pointed out that arctic birds which have reached the southern hemisphere during migration are, at the same time, undergoing the same physiological changes in response to decreasing daylight. The cycles of moult and of spring restlessness are all manifested in the wader flocks reaching New Zealand. Regular exceptions in the case of immature birds are noted below, and also unusual aberration in the behaviour of *Calidris canutus* in the southern winter of 1936.

Order LARIFORMES.

Family STERCORARIIDAE.

GENUS STERCORARIUS Brisson 1760.

***Stercorarius pomarinus* (Temminck).**

Although less frequently recorded in New Zealand seas than *Stercorarius parasiticus*, the Pomarine jaeger is probably a regular migrant, at least in the north of the North Island, from which region there are a number of reliable sight records and one specimen available. The specimen, No. 1270.1 in the collection of the Auckland Museum, was shot by Mr. A. B. Deeming at the Bay of Islands in December, 1933. It is an immature female of the light phase and is in full moult, practically complete in the case of the body plumage and less advanced in wings and tail. The fresh plumage is that described by Bent (1921, p. 9) as "second winter." Superficially the upper parts are almost uniformly dark brown, but this is because the original rufous-edged feathers have worn and the new white-edged feathers are not fully exposed. The golden collar is quite perceptible. Chin, throat, upper breast and sides are so heavily mottled as to be more brown than white, but the lower breast and belly are mainly white, slightly mottled centrally and barred on the flanks with brown. Iris brown; bill greenish black; feet black. Dimensions of wing (worn) 368, tail 170, tarsus 56, middle toe and claw 56, culmen 42.5 mm.

The bird was one of two seen by Mr. Deeming in company with several *Stercorarius parasiticus* in the neighbourhood of a colony of the white-fronted tern (*Sterna striata*) nesting on a small islet. The stomach of the specimen shot contained the down feathers and flesh of a nestling tern.

Mr. Deeming has informed me that he has noticed larger jaegers associated with the more common *S. parasiticus* in previous summers at the Bay of Islands. I have no other reliable sight records from the New Zealand coast, but have the following in my own notes of observation at sea near Sydney Heads, N.S.W. "11th April, 1930: Five jaegers followed the ship all afternoon. They were all in intermediate plumage similar to that often seen in *S. parasiticus*, but were larger than that species and had the projecting central rectrices broader and rounded rather than pointed." Without doubt these birds were *S. pomarinus* in the same plumage as the specimen described above.

***Stercorarius parasiticus* (Linné).**

All the smaller jaegers taken in New Zealand seas appear to be of this species. There are six specimens at present in the collection of the Auckland Museum, all in some stage of moult, and no two exactly alike. In some respects one or two of them do not conform with the published accounts of plumage sequences in *S. parasiticus* and it is thought desirable to give here a brief description of each specimen.

No. 95.1, ♂, Bay of Islands, January, 1934, is in worn plumage on tail and wings, with moult commencing in the outer secondaries, and a moult of body plumage almost complete. The upper parts are mainly brown streaked on the crown and terminally barred on the mantle with pale pinky buff. Chin, neck all round, and underparts dull white, mottled and barred with brown and tinged with buff on the breast. Under wing coverts barred brown and buffy white, axillaries white barred with brown. The colours of the soft parts have not been noted, but there appears to be a pale patch at the base of the inner webs and adjoining part of the toes. This is the only specimen in the series in intermediate plumage, and I presume it to be a sub-adult stage of the light form.

No. 95.5, ♂, Bay of Islands, 16th April, 1931, is an adult of the light form just completing a moult, the central rectrices being still partly in sheath. The bird differs from standard descriptions only in that the frontal feathers are pale brown, not white, and the chin and throat are shaded with cinnamon grey. Iris brown; feet brownish black; dark brownish black on ridge and tip, paler below. Dimensions: Wing 305, tail (moult complete) 170, tarsus 45, toe 42, culmen 32.5 mm.

No. 95.6, ♂, Bay of Islands, 16th April, 1931, appears to be immature and is also nearly through a complete moult. The whole of the upper parts are uniformly sooty brown except for flecks of faded buff on the old plumage of the crown, and a streaky neck. Chin and throat buffy white heavily mottled with brown; foreneck and breast more uniformly brown; lower breast and belly mottled, the old plumage being barred and the new more uniformly brown; under tail coverts sooty brown, faintly tipped on some with whitish. The central rectrices are missing. Iris brown, feet black, bill blackish brown. I take this to be a young bird of the dark form undergoing its first moult. Tarsus 45, toe 40, culmen 34 mm.

Nos. 95.2 and 95.3 are two moulting birds of the dark form collected at the Bay of Islands in the summer of 1897. The skins are not sexed. Both are uniformly brown except for yellowish feathers on the nape, and in 95.3 there are still closely barred feathers producing a mottled pattern on the belly; also a few pale tipped feathers in this region in 95.3.

No. 95.4 is unfortunately without any data. It is an adult of the dark form, in fresh plumage, entirely sooty brown above except for flecks of straw colour on the neck, and uniformly grey brown below. There is an adventitious white feather in the underwing coverts on each wing at the carpal flexure. Dimensions: Wing (outermost primary still short of maximum) 325, tail 202, tarsus 46, toe 44, culmen 35 mm.

The species is plentiful in New Zealand seas every summer, the birds being found near almost every breeding colony of the white-fronted tern, *Sterna striata*. Birds of the dark form seem to outnumber those of the light form in all localities.

Order CHARADRIIFORMES.

Family CHARADRIIDAE.

Genus ARENARIA Brisson 1760.

Arenaria interpres oahuensis (Bloxham).

As the subspecies distinction under the above name of the turnstone wintering in the Pacific Islands, Australia and New Zealand is not clearly defined, a description of a small southern series may be of value to future workers. Twelve specimens in the Auckland Museum collection have been examined.

No.	Sex.	Locality.	Date.	Wing.	Tail.	Tarsus.	Toe.	Culmen.	Plumage Notes.
71.2	♂	Manukau Harb.	—	157	58	26	26	21.5	nuptial
71.4	♂	Auckland Harb.	17/4/03	158	60	26	26	21	nuptial
71.6	♂	Manukau Harb.	25/3/81	156	61	26	26	20.5	nuptial
71.5	—	Solomon Islands	—	152	60	27	27	20.5	winter (moulting)
71.7	♀	Manukau Harb.	—	159	61	26	27	22	nuptial
71.8	♂	Manukau Harb.	22/3/31	152	63	26	27	20.5	nuptial
71.9	♂	Manukau Harb.	22/3/31	156	63	26	26	20.5	nuptial
71.10	♀	Lake Ellesmere	3/2/34	150*	63	26	27	24	winter (moulting)
71.11	♀	Manukau Harb.	25/3/36	159	65	26	26	21	winter (moulting)
71.12	♀	Manukau Harb.	25/3/36	160	65	26	26	22	nuptial
71.13	♂ juv.	Waikanae	—	144	54	25	24	20	moulting
—	♀	Manukau Harb.	17/3/36	155	62	25	26	23	nuptial
—	♀	Tikopia Island	—	150*	60	26	25	22.5	nuptial

Excepting the two birds from the Solomon Islands and Tikopia, all the localities are in New Zealand. Allowing for moulting specimens there is seen to be uniformity in size, females having a slightly greater bill measurement than males. Females in fresh nuptial plumage differ from males in that the facial feathers which are white in males are tinged with pinkish buff. The mantle is more uniformly marked, the feathers being black edged with chestnut; in males some of the central mantle feathers are pure chestnut and some lateral ones pure black. The long tertials in females are black, glossed with oil green and faintly edged with reddish brown at the tip; the same feathers in males are broadly tipped with chestnut and have an irregular sub-terminal bar of the same colour.

Turnstones in New Zealand are generally seen in small flocks of twenty or thirty, moving and feeding independently of the larger waders, but sometimes associated with lesser golden plover. They undergo a complete moult, including wings, during their stay here, and from March until the middle of April practically all the birds seen are in fresh nuptial plumage, males and females being in separate flocks. There are no records available of birds seen later than 17th April or earlier than 12th September.

*Outermost primary short of maximum.

Genus *PLUVIALIS* Brisson 1760.*Pluvialis dominica fulva* (Gmelin).

From a large series in the collection of the Auckland Museum the following have been selected as significant specimens:—

No.	Sex.	Locality.	Date.	Wing.	Tail.	Tarsus.	Toe.	Culmen.	Plumage.
29.26	♂	Tasman Sea	26/10/35	175	70	44	30	23.5	winter
—	♂	Auckland	31/10/22	166	55	41	30	22	juvenal
69.21	♂	Te Kao	2/11/32	176	57	45	27	23	juvenal
69.23	♂	Lake Ellesmere	3/ 2/34	176	66	45	28	23	winter
—	♂	Samoa	20/ 3/24	166	58	42	39	24.5	nuptial
69.15	♂	Kermadec Islands	16/10/10	172	62	44	39	23.5	moulting
69.22	♀	Lake Ellesmere	3/ 2/34	171	62	41	29	23	winter
69.24	♀	Lake Ellesmere	3/ 2/34	166	57	47	31	24	winter
—	♀	Manukau Harb.	10/ 2/36	180	62	45	30	22.5	winter
—	♀	Manukau Harb.	10/ 2/36	162	55	44	30	23	winter
69.7	♀	Kermadec Islands	9/ 9/09	168*	60	42	38	25	moulting
69.12	♀	Kermadec Islands	12/ 9/09	176	60	44	30	22.5	moulting

An analysis of the size of birds in this series gives:—Six males: Wing 166-176 (171.9), tail 55-70 (61.3), tarsus 41-45 (43.5), toe 27-39 (32.1), culmen 22-24.5 (23-25). Six females: Wing 162-180 (173.9), tail 55-62 (59.3), tarsus 41-47 (43.9), toe 29-38 (31.3), culmen 22.5-25 (23.3).

These figures do not differentiate the sexes much in the matter of size. The range of variation is considerable and suggests that more than one breeding race may be represented in the flocks wintering here.

The full series from the Kermadec Islands in the Auckland Museum collection comprises ten birds, all of which were collected by R. Bell in the southern spring as they arrived from the north. The earliest, taken on 9th and 12th September, 1909, are two adult females in worn breeding plumage, with body moult into winter plumage in progress. Of six birds taken between 10th and 25th October, four are males in winter plumage and two juvenal males. The two November birds are adult male and female, the former in winter plumage and the latter still moulting.

Birds of the year in juvenal plumage seem to be distinguishable by the pattern on the rectrices, which are plain sepia centrally about the shaft, obscurely barred nearer the edges, and laterally edged with spots of yellowish white. The adult tail is barred with light and dark sepia, the yellowish white lateral spots being at the edges of the paler bars. Winter breast feathers assumed by adults at the post-nuptial moult are uniform pale sepia broadly edged with dull yellow at the tips. In this plumage also the feathers of the mantle are dark brown margined with yellow and not distinctly spotted as in the spring plumage.

*Outermost primary short of maximum.

These plover arrive in New Zealand throughout October, in which month there are also several records of individuals alighting on vessels in the Tasman Sea between New Zealand and Australia. The latest so taken was about 500 miles south of Norfolk Island on 25th October, 1935, the bird having been seen flying against a southerly gale at that point and making little headway.

During the stay in New Zealand moult of body plumage from nuptial to winter and back to nuptial is practically continuous; there is also a quill-moult about January. Many March birds are in almost full nuptial plumage. This plumage was assumed in two successive years (1922-23), at the usual time, by a bird in captivity in the Wellington Zoological Gardens.

I do not consider as reliable the supposed breeding record of this species from Portland Island, New Zealand, by C. H. Robson. In quoting the original record Oliver (1930, p. 283) states that "as specimens were forwarded to Buller, the identification may be accepted." Buller, however, does not state specifically that he received as specimens the actual birds found nesting. He does record (1888, p. 7) two specimens of *Charadrius fulvus* taken by C. H. Robson on Portland Island in September and November respectively. Robson's breeding record (1883, p. 308) is of a nest found on 9th January, and his account suggests that the birds were not collected. The locality and date suggest *Charadrius obscurus*, and Robson actually states that his "golden plover" resembled Buller's description of the appearance and habits of that species.

Family SCOLOPACIDAE.

Genus PISOBIA Billberg 1828.

Pisobia acuminata (Horsfield).

No.	Sex.	Locality.	Date.	Wing.	Tail.	Tarsus.	Toe.	Culmen.
A.C.O'C. 516	♂	Lake Ellesmere	2/2/30	137	52	31	30	24.5
303	♂	Lake Ellesmere	25/3/33	138	52	31	30	26.5

The two New Zealand specimens of the sharp-tailed sandpiper, of which measurements are here given, are in the collection of Mr. A. C. O'Connor, of Wellington, and represent additional records of the species. Both are adults which have just assumed breeding plumage. The long tarsus and long wing exceed the average recorded for Asiatic specimens, and give support to the suggestion of Ridgway (1919, p. 277) that birds wintering in New Zealand may be representative of a race the breeding range of which remains to be determined.

Pisobia maculata (Vieillot).

No.	Sex.	Locality.	Date.	Wing.	Tail.	Tarsus.	Toe.	Culmen.
A.C.O'C. 617	♂	Lake Ellesmere, N.Z.	3/3/33	—	—	27	27	27.5
518	♀	Nelson, N.Z.	26/3/30	116	42	26	25	26
300.3	—	Alaska	—	129	54	26	25.5	27
300.4	♀	Sumas, B.C.	23/9/87	131	50	27	28	26.5
75.1	—	Kermadec Islands	—	130	49	26.5	27.5	26.5

In the two New Zealand examples of which measurements are given the wings are not of full length owing to moult not being complete, but they agree in other respects with the specimens from Alaska and British Columbia. If these birds represent the normal condition the moult of the pectoral sandpiper must be later than that of the other migratory shore-birds, of which March specimens usually have new flights fully grown.

The Kermadec Island specimen shows intermediate characters having the indistinct breast markings of *P. acuminata*, but a shorter wing and short tarsus falling within the dimensional range of *P. maculata*.

Pisobia ruficollis (Pallas).

No.	Sex.	Locality.	Date.	Wing.	Tail.	Tarsus.	Toe.	Culmen.
545	♀	Waikanae, N.Z.	30/3/30	100	—	—	—	18
482	♀	Lake Ellesmere, N.Z.	3/29	99	—	—	—	17
D.M. 1189	♂	Lake Ellesmere, N.Z.	3/28	101	40	20	20	17
1190	♀	Lake Ellesmere, N.Z.	3/29	102	46	20	20	17.5
A.M. 1161.1	—	Lake Ellesmere, N.Z.	3/30	102	46	20	19	16.5

There seems little doubt that all the specimens of small stints taken in New Zealand are referable to *P. ruficollis*. Although all in the above series were taken in March, only one (No. 1161.1) shows signs of breeding plumage.

GENUS *EROLIA* Vieillot 1816.**Erolia testacea** (Pallas).

No.	Sex.	Locality.	Date.	Wing.	Tail.	Tarsus.	Toe.	Culmen.
A.C.O'C. 266	♂	Lake Ellesmere	1/10	130	51	30	23	32
539	—	Lake Ellesmere	26/3/27	130	45	30	23	36.5

Little can be added to the information given by Stead (1923, 495) relating to the occurrence of the curlew sandpiper in New Zealand except that further specimens have been collected or seen. No specimens in full breeding plumage have yet been recorded here. No. 539, listed above, has completed a moult, but has only a sprinkling of chestnut feathers on neck and breast.

Genus *CROCETHIA* Billberg 1828.

Crocethia alba (Pallas).

No.	Sex.	Locality.	Date.	Wing.	Tail.	Tarsus.	Toe.	Culmen.
—	—	Invercargill, N.Z.	—	128	51	25	20	26
313.2	♂	Okanagan, B.C.	25/7/08	120	49	25	18	24
313.3	juv.	Comox, B.C.	31/8/03	121	50	25	17.5	26.5

There are now three records of the sanderling in New Zealand. In addition to Mr. E. F. Stead's original record (1923, 494) of a bird in winter plumage taken on 7th January, 1917, he has since obtained another in the same plumage at the mouth of the Waimakariri River on 3rd February, 1934. The bird, of which measurements are given above, is in the collection of the Invercargill Museum, and is without date except that it was collected near Invercargill. It is in full breeding plumage.

Genus *NUMENIUS* Brisson 1760.

Numenius phalopus variegatus (Scopoli).

The eastern Asiatic whimbrel cannot on the available evidence be considered a regular migrant to New Zealand. Several were reported in September, 1933, as arriving in foggy weather at Mokohinau and Cuvier Islands and remaining for some days near the light-keepers' houses, where they became tame. The remains of one of them, killed by a cat, were subsequently sent to the Auckland Museum and the identification confirmed.

Genus *CALIDRIS* Merrem 1804.

Calidris canutus (Linne).

The knot is second only to the bar-tailed godwit in numbers as a migrant in New Zealand. The specimens available indicate that probably only one race occurs here, and no specimens of *Calidris tenuirostris* have been recorded. In the series examined the dimensions of five males are: Wing 153-168 (162), tail 54-61 (59), tarsus 29-32 (30.5), toe and claw 22-27 (24), culmen 31-34 (32). Five females: Wing 160-172 (167.5), tail 59-63 (60), tarsus 30-32 (31), toe and claw 25-27 (25.5), culmen 32-35 (33.4).

An examination of the plumage shows that a few adults arrive in October before completing the moult into winter plumage. The immature birds include none in full juvenal plumage, but a number that have just completed a post-juvenal moult of body plumage, retaining only juvenal wings. In January and February birds a number of different moult sequences are apparent. Some immature birds are undergoing their first moult of quills, and a body moult in which plain grey back feathers are being replaced by new ones of the same colour. In others the new feathers in this region have black centres, and such birds have also a few cinnamon-rufous feathers on the under-parts. Of birds in full nuptial plumage there are some of both sexes collected at the end of March. The new plumage of the upper parts varies; in some birds the feathers are dark sepia ornately tipped with buffy white, and laterally spotted with cinnamon-rufous; in others there occur glossy greenish black feathers white edged at the tip, admixed with new plain grey feathers.

Although behaving similarly to godwit on the feeding grounds and often flying with them, knot are rarely seen with the flocks of godwit that remain in New Zealand throughout the southern winter. Stead remarks (1923, p. 491) that he knows of no instance of a knot having done so. Field observations and collecting in 1936, however, show that in some circumstances large flocks do remain here. While collecting at Lake Ellesmere in company with Mr. E. F. Stead in February, 1934, the writer found knots to vary greatly in general condition and in the progress of the moult, which in most of the specimens was several stages behind that of the other migratory waders. It is rare to find a bird in poor condition in February and March, but some of these specimens appeared half starved. A few of them on dissection were found to have pellets of lead shot in their stomachs, picked up, no doubt, while feeding in shallow water which had been much shot over in the shooting season for waterfowl. At the time it was assumed that "lead-poisoning" might account for the poor condition and delayed moult, but no opportunity occurred of observing whether any knot remained here in the following winter.

Observations of the Manukau Harbour have been more continuous in 1936, when it was noticed in March that flocks of 2,000 to 3,000 birds contained fewer than usual in nuptial plumage. At the end of April, when all the other waders except the usual immature godwits had left, the knots were still present in the same numbers, and many of them were still assuming a belated nuptial plumage. These flocks were still on the Manukau in May and June, and in July and August a permit to collect further specimens was granted by the Hon. Minister of Internal Affairs. The birds collected were all adults undergoing a post-nuptial moult into winter plumage. They had, therefore, passed through the nuptial plumage phase without migrating and without breaking up the flocks, and had certainly made no attempt to nest. The "lead-poisoning" theory will not account for aberrant behaviour on this scale, and it may be presumed that the belated moult was

due either to actual shortage of food or to shortage of the required number of feeding hours caused by the birds being kept on the wing during the shooting season for godwit, which extends through January and February and, in some districts, March.

Genus *LIMOSA* Brisson 1760.

Limosa lapponica baueri Naumann.

Bar-tailed godwits found in New Zealand seem to be referable to the sub-species *baueri* and to fall within the restrictions of the sub-species recently proposed by Portenko (1936).

The size variation associated with sex is well defined in a large series. Thirteen males have wing length 216-229 (average 221.9) mm., culmen 72-83 (78.1). Ten females have wing 230-250 (237.9), culmen 102-116 (110.3).

Plumage differences associated with sex do not seem to be clearly defined in the literature, although remarked on as early as 1853 by Middendorf. Males in full cinnamon-rufous nuptial plumage (Pl. 1, fig. 3) are plentiful in March and early in April before their departure. There are no females in similar plumage in any of the collections that I have been able to examine. Adult females in breeding condition, as shown by the development of the ovaries, are, however, represented by one or two birds shot on 28th March, 1935 (Pl. 1, fig. 2). They are in fresh feather after a moult, the feathers of mantle and scapulars being dark sepia rather broadly edged with dull apricot-buff. The underparts are mainly white irregularly tinged salmon-buff by the presence of scattered feathers of that colour amongst the white. There is also a strong tinge of salmon-buff on the throat and fore-neck, where the feathers are streaked with sepia and chevron bars of sepia on flanks and under tail-coverts; tail plain grey slightly edged white at tip. The full dimensions of a female in this plumage are, wing 250, tail 84, tarsus 63, middle toe 40, culmen 116; and of a male in nuptial plumage, wing 225, tail 65, tarsus 53, toe 32, culmen 74 mm.

October arrivals consist of adults in winter plumage, some still moulting and a large proportion of birds of the year. The latter commence a post-juvenal moult which is rarely completed by April, when the adults, which have by that time completed a pre-nuptial moult, leave again for the Arctic. I consider it likely that none of these birds of the year leave with the April migrants, for the considerable flocks that remain in New Zealand through the southern winter seem to consist almost entirely of birds completing a post-juvenal moult. The few exceptions are maimed adults. Such "winter" birds are found to be in good condition, but not excessively fat like the adults leaving on the breeding migration in April.

Family PHALAROPODIDAE.

Genus PHALAROPUS Brisson 1760.

Phalaropus fulicarius (Linne).

The occurrence of phalaropes in New Zealand is entirely accidental. Their range during the northern winter is largely pelagic in the southern hemisphere, but probably not in the New Zealand region at all, for there are no local records in the southern summer. The records are all in southern mid-winter of stray birds in full nuptial plumage, and all females. To two such records given by Oliver (1930, p. 317) can now be added a further specimen picked up near Hastings on 4th July, 1934, by Mrs. H. Thompson and sent to the Auckland Museum. It is a female in rich and perfect nuptial plumage; wing 137, tail 65, tarsus 22, middle toe and claw 22, culmen 24 mm. The condition of the plumage is shown in Pl. 1, fig. 1.

Genus LOBIPES Cuvier 1817.

Lobipes lobatus (Linne).

Additional to the single record of the northern phalarope in New Zealand given by Oliver (1930, p. 318) is a further specimen taken at Wanganui in April, 1935, and now in the Wanganui Public Museum. It is a female in nuptial plumage.

The foregoing deals only with species of which there have been further records since 1930, but the New Zealand list also includes *Charadrius veredus* Gould, *Limosa haemastica* (Linne), *Glottis nebularius* (Gunnerus), *Heteroscelus incanus* (Gmelin), *Numenius cyanopus* Vieillot, and *Numenius minutus* Gould. Taking into account the fact that all the records over a number of years have been made by not more than two or three competent observers, and that many of the regular haunts of migrant visitors are not easily accessible, it is likely that further field work will not only add to the list, but also throw fresh light on the behaviour of the regular migrants.

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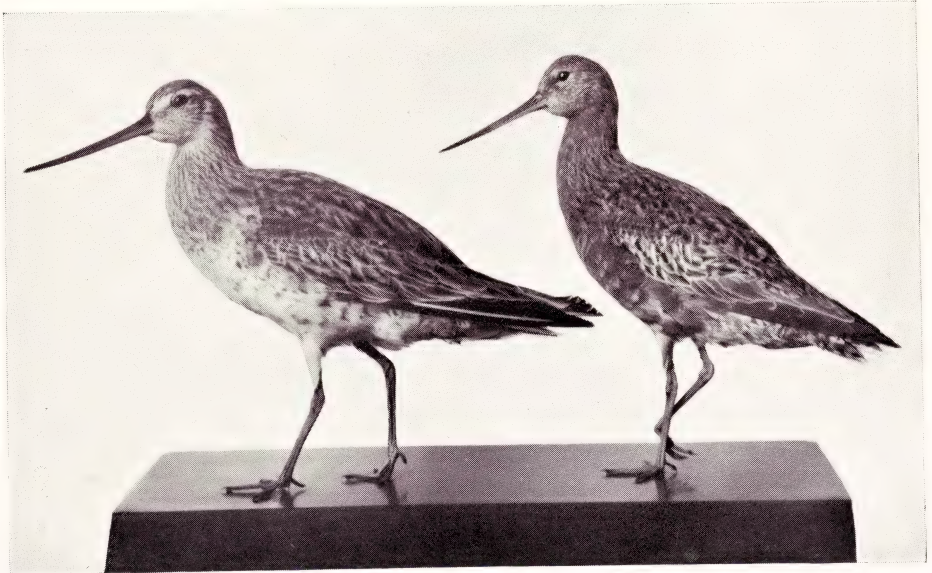
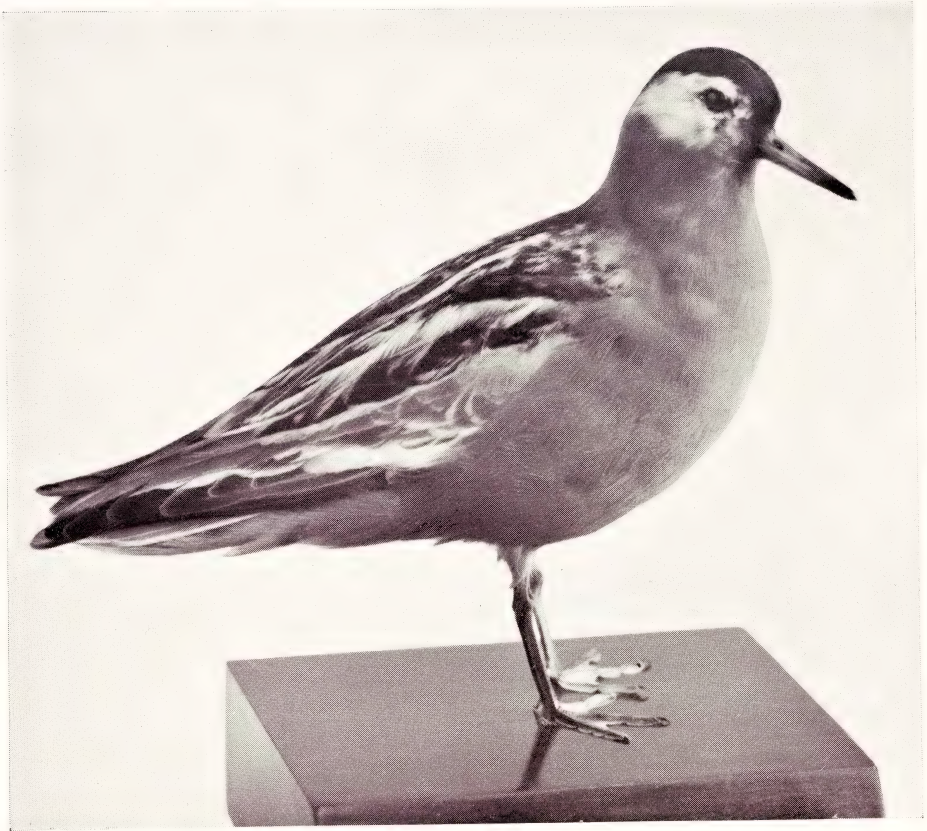


Fig. 1. *Phalaropus fulicarius*, female; Hastings, N.Z., 4th July, 1934.
Figs. 2 and 3. *Limosa lapponica baueri*, adult male (right) and female;
Manukau Harbour, March, 1935.